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REPORT TO THE CONGRESS

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Better Cost Accounting Needed For Operation And Maintenance Of Military Family Housing B-159797

Department of Defense

BY THE COMPTROLLER GENERAL OF THE UNITED STATES

JULY 2, 1971

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-159797

To the President of the Senate and the
Speaker of the House of Representatives

This is our report on better cost accounting needed for operation and maintenance of military family housing. Our review was made pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

Copies of this report are being sent to the Director, Office of Management and Budget; the Secretary of Defense; and the Secretaries of the Army, Navy, and Air Force.

Comptroller General
of the United States

D I G E S T

WHY THE REVIEW WAS MADE

Coincidental with congressional interest in improving fiscal management of military family housing, the Department of Defense (DOD) in 1962 developed cost accounting procedures for operation and maintenance of such facilities. DOD has about 364,000 units acquired at a cost of about \$3.5 billion. Appropriations for operation and maintenance were almost \$400 million in fiscal year 1970. (See pp. 3 to 5 and 11.) The General Accounting Office (GAO) wanted to know whether DOD was meeting its objectives in accumulating cost data for effective management of the housing and to identify areas in need of improvement.

FINDINGS AND CONCLUSIONS

DOD's method of cost accumulation lumps together housing units that are widely dissimilar in age, size, type of construction, and condition. Operation and maintenance cost figures are distorted by averaging out the differences. (See pp. 6 and 8.)

Costs recorded for operation and maintenance of family housing at the 14 Army, Navy, and Air Force installations included in this review were inaccurate and incomplete in a number of cases. (See p. 15.)

Little or no use was being made of the collected data at most installations covered in the review. (See p. 11.)

Many housing units, according to DOD, are no longer economical to operate and maintain. Included are the large and old structures assigned to flag, general, and senior-grade officers. (See p. 22.)

RECOMMENDATIONS OR SUGGESTIONS

The Secretary of Defense should

- consider establishing, for cost accounting purposes, new categories of housing--taking into account age, size, type of construction, and condition of units--to provide data that is more nearly comparable and more useful for cost management and for reference in setting standards in the future (see p. 10);

Tear Sheet

- issue more comprehensive directions to ensure greater uniformity in recording and reporting of costs of operation and maintenance of family housing throughout the armed services (see p. 20); and
- provide the Congress, in DOD's annual construction authorization requests, with a plan for the phased, orderly replacement of family housing units no longer economical to operate and maintain (see p. 28).

AGENCY ACTIONS AND UNRESOLVED ISSUES

DOD agreed that revising housing categories, to make possible more meaningful comparison of data, would be useful. DOD said, however, that establishing a larger number of categories would increase the work load and would not offer benefits commensurate with the additional cost. (See p. 13.)

DOD had not determined the cost of operating the present cost accounting system nor the additional cost of an expanded system. GAO recommends that DOD do so. If DOD's study shows that an expanded cost accounting system would not be economically feasible, GAO recommends that the present system, which is of limited usefulness, be simplified. (See p. 14.)

DOD agreed that more definitive instructions should be issued to ensure greater uniformity in cost accounting for family housing and stated that new instructions were being prepared. GAO plans to make a follow-up review to determine whether the new instructions serve their purpose. (See p. 20.)

DOD agreed that there should be a plan for replacement of uneconomical family housing units and said that, as soon as more urgent priorities were met, a request would be presented to the Congress for authorization to replace uneconomical housing. (See p. 28.)

MATTERS FOR CONSIDERATION BY CONGRESS

In view of the indefinite nature of DOD's intent to present a plan for replacement of uneconomical housing, the Congress may wish to consider

- requesting DOD to present an inventory of uneconomical housing and
- the merits of authorizing current expenditures for replacement of uneconomical quarters to achieve future savings in operation and maintenance costs. (See p. 29.)

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CHAPTER 1

INTRODUCTION

Prior to fiscal year 1963, family housing of the Department of Defense was managed on a decentralized basis. Each military department managed its own housing program and financed its program from the applicable portions of appropriations for military construction, military personnel, research, development, test and evaluation, and operation and maintenance.

During consideration of the fiscal year 1963 family housing program, the Congress directed attention to the need for establishing management procedures which would more adequately and completely consolidate all costs associated with the family housing program. This philosophy coincided with DOD's desire to simplify accounts and improve management of the program. In addition, both parties were interested in correcting instances of mismanagement on the part of the services.

Therefore, the Congress made provision for the establishment of a DOD management account. This account was authorized by title V, section 501, Public Law 87-554, enacted on July 27, 1962,

"For the purpose of providing improved management and administration of funds appropriated or otherwise made available to the Department of Defense for family housing programs ***."

To prescribe the basic policies for the operation of the management account, the Secretary of Defense issued DOD Directive 7150.4, dated November 8, 1962, entitled "Financing the Department of Defense Family Housing Program." This directive established accounts designed to facilitate the effective administration of the DOD family housing program and provided for a uniform account structure for use by all DOD components. One of the major functional categories established was for the "operation and maintenance" account. Other major categories pertain to "construction" and "debt payment."

On October 20, 1969, DOD Directive 7150.4 was reissued. Pertinent financial management procedures in the previous version were incorporated, with additions and modifications, into DOD Instruction 7150.6, also dated October 20, 1969.

DOD Instruction 7220.16, dated May 18, 1964, entitled "Cost Accounting and Reporting for Operation and Maintenance of Military Family Housing," formalized previously prescribed detailed accounting procedures for recording operation and maintenance costs of military family housing and provided a chart of accounts for accumulating cost data at installation level. The detailed accounting procedures provided that separate cost data be accumulated for five categories of housing: (1) encumbered housing,¹ (2) appropriated-fund housing, 1950 and after, (3) leased housing, (4) substandard housing, and (5) other public quarters.

These accounts were established as the result of a DOD family housing task force report on uniform cost criteria. The task force was assigned responsibility for developing cost criteria which would show the cost of operating and maintaining all military family housing.

In its report the task force outlined the objectives to be derived from adoption of uniform cost criteria.

- "1. A cost system based upon uniform Operation and Maintenance of family housing cost criteria which, within the limitation of its usefulness, will provide a valid basis for comparison.

¹Privately financed; i.e., mortgaged--principally Capehart and Wherry housing. Capehart housing was constructed under Public Law 345, 84th Congress, on Government land by private contractors. The housing was financed by 100-percent Federal Housing Administration-insured mortgages which were assumed by the military upon completion of construction. Wherry housing was generally built on Government property leased to sponsors. The housing was insured by the Federal Housing Administration and rented to military tenants. These projects were subsequently acquired by DOD and designated as public quarters.

- "2. A cost system which will be responsive to the production of significant and timely data, with a capability for breakout of summary data (flexibility).
- "3. A cost system which will record and produce a report on the total costs incurred.
- "4. A cost system based upon actual costs incurred including certain cost factors which can be economically and feasibly collected only on the basis of engineering analysis.
- "5. A cost system based upon the foregoing objectives which will minimize the revision of existing cost and maintenance management systems."

The accounts subsequently established were designed to provide the basis for development of cost data useful in the effective management of family housing at all management levels. DOD intended that the accounting system should also provide cost data for use in cost control, for making cost comparisons among the services, and for the development of statistical norms which could later be used to develop standards.

DOD has an inventory of about 364,000 family housing units acquired at a cost of about \$3.5 billion. DOD received an appropriation of about \$397 million for the maintenance and operation of these housing units during fiscal year 1970. (This appropriation covered also the operation of several thousand housing units leased by DOD). In fiscal year 1971 the operation and maintenance appropriation was about \$424 million.

CHAPTER 2

NONCOMPARABILITY OF REPORTED COSTS

FOR MANAGEMENT PURPOSES

The cost accounting and reporting requirements for family housing operation and maintenance provide that cost data be accumulated in the five categories mentioned in chapter 1. Within each of these categories, there are significant differences in such factors as (1) age and size of units, (2) type of construction, and (3) climatic conditions. No recognition is given to these differences in accumulating and reporting housing costs.

Consequently, the comparison of costs for operation and maintenance of family housing among the installations within each military department and among the military departments is of very limited value.

AVERAGING OPERATION AND MAINTENANCE COST OF UNLIKE UNITS RESULTS IN NONCOMPARABLE DATA

Costs are collected within the present categories of housing without further subdivision as to age, size, type of construction, and condition of the buildings. The housing units are of such widely divergent age, size, condition, and location that average unit costs are almost meaningless and useless for purposes of evaluation and comparison. The following examples illustrate some of the variables within the housing categories: encumbered housing; appropriated-fund housing, 1950 and after; other public quarters; and substandard housing; at two of the installations we reviewed.

Encumbered housing

At Westover Air Force Base, Massachusetts, there are 1,557 dwelling units under the encumbered-housing category, comprising 1,067 Wherry units about 17 years old, 310 Capehart units about 9 years old, and 180 Capehart units about 7 years old.

The housing units in this category have different construction characteristics. For example, the Wherry units are

all one-story, slab-on-grade construction with radiant-heating piping buried in the slab-on-grade floors. The piping is failing and cannot be repaired because of its location within the slab, thus conversion to another type of heating system is necessary. Roofing on the Wherry units has developed leaks and reroofing is required. The units contain a type of wood siding which will not "breathe" and painting problems have been created. The 310 Capehart units have wood shingle siding which will "breathe," and thus avoid the painting problems identified with the Wherry units.

Because of the differences in age, type of construction, and condition of these three groups of housing, we made a test of sample units in each class, selected on a stratified random-sampling basis, to estimate the approximate degree of difference in maintenance costs. We found that it was not feasible to establish actual expenditures on individual dwellings or like types of units because detailed records had been destroyed and summary records contained total costs for all units in the encumbered-housing category.

We found, however, that about May and June 1968 inspections at Westover had been made of the exteriors and some interiors and that maintenance requirements for fiscal year 1969 had been scheduled in detail including the estimated costs. As the scheduled work appeared to be valid and reasonable, we utilized this data in our test, the results of which are set forth below.

<u>Type</u>	<u>Average estimated unit cost of needed maintenance</u>
Wherry	\$1,575
First Capehart	585
Second Capehart	199

Note: Average for entire test sample is \$1,234.

These figures illustrate the wide divergence in the estimated maintenance costs of housing units in a particular category of housing which are distorted through averaging.

Other public quarters;
appropriated-fund housing, 1950 and after;
and substandard housing

At the Naval Air Station, Pensacola, Florida, we found that the other-public-quarters category contained 119 units which were built prior to 1950, and these units varied considerably as to type of construction, age, size, number of units per building, original cost, and number of bedrooms. Seventeen of the units were built between the years 1840 and 1900, 16 were built between 1900 and 1911, and 86 were built between 1911 and 1950. Some of the structures are of frame construction, and others are of brick construction.

The category--appropriated-fund housing, 1950 and after-- contained 279 units of which 250 were built in 1968, 25 were built in 1956, and 4 were converted to public quarters in 1950. The four converted quarters are in buildings originally built in 1845 and 1917. The substandard-housing category contained 278 inadequate public quarters of which 198 were built in 1941 and 1942 and 80 were built in 1944.

Since operation and maintenance cost data are being accumulated and reported upon by broad categories of housing rather than by individual units or by more homogeneous categories, no identification is possible of family housing units that incur excessive costs except general- and flag-officer quarters for which costs are presently accumulated and reported upon on an individual-unit basis. Consequently, little effective use can be made of the information in its present form.

CONCLUSIONS

In our opinion the accumulating and reporting of operation and maintenance costs under five categories of housing, as at present, lumps together widely dissimilar units varying in age, size, type of construction, condition, and location and distorts these costs by averaging out the differences. This averaging out, in effect, renders the costs almost meaningless and useless for purposes of valid evaluation and comparison.

We believe that meaningful comparative analyses could be made if DOD, in addition to providing for more uniform accumulating and recording of operation and maintenance costs as discussed in chapter 3, were to provide also for a more homogeneous categorization of housing. There should be a close relationship of operation and maintenance costs for similar types of housing. Such categorization would provide for more common relationships among types of housing, would provide cost data usable for identifying inefficient or uneconomical maintenance organizations, and would facilitate identification of housing categories or units no longer economically feasible to operate and maintain. A more homogeneous categorization of family housing would lend itself to more effective management and the use of the principle of management-by-exception.

AGENCY COMMENTS AND GAO EVALUATION

We brought our findings to the attention of the Secretary of Defense in a draft report dated July 20, 1970. We suggested that, to provide a more valid basis for comparison of operation and maintenance costs among the various DOD components, the Secretary of Defense consider providing a more homogeneous categorization of family housing for accumulating and reporting operation and maintenance cost data. Such categorization should take into account age, size, type of construction, and condition of units.

In commenting on our suggestion, DOD stated that the task force which developed the cost criteria for family housing had recognized that a capability to compare similar housing units would be quite useful. The task force knew, however, that reporting for such a complex categorization would be voluminous and costly and would involve numerous recordations, summarizations, and reports. The task force therefore recommended adoption of the present summary categories. These categories provide data to the Office of the Secretary of Defense and DOD component headquarters that are meaningful and useful for management and budgeting. Comparisons and evaluations are made that identify areas requiring further examination.

We agree that the present categorization has some use, especially in budgeting. It is certainly an improvement over the previous system which did not provide for readily identifying the total cost of operating and maintaining family housing. The summary data, however, has limited usefulness for making valid comparisons because it is too broad to be really meaningful. We believe that more meaningful categorization is required for effective cost control and for provision of valid standards for comparative purposes which would lead to eventual cost reduction. Cost control and the provision of standards are stated objectives of the DOD cost accounting system.

DOD said that, at the installation level, the differences in houses are known specifically and are considered in work plans for operation

and maintenance. At the next higher level, where comparisons between installations are useful, officials are familiar with their installations and are able to evaluate the summary data provided. At the higher levels the summary data serves well since no installation-by-installation review is required or necessary.

The scope of the assignment provided to the task force which developed the cost criteria for family housing was the establishment of operation and maintenance cost criteria which would provide the basis for development of cost data useful in the effective management of family housing at all management levels.

DOD Instruction 7220.16, dated May 18, 1964, which formalized the accounting and reporting procedures for operation and maintenance costs of family housing, states that

"The detail cost accounts are designed for use by management at both installation, and service or agency headquarters level for cost analysis and for development of standards or norms, and for use at secretarial levels for special cost studies as necessary and upon request. ***"

During our review we attempted to ascertain the extent to which the data developed by the cost accounting system were used at various levels of command. We found little or no use being made of the data at most of the installations covered in our review. During a survey completed in June 1970 on family housing in the Panama Canal Zone, we were advised by Army officials that cost data on family housing as presently accumulated were not used to any significant degree at the local level. Army officials advised us also that the Army Housing Branch in the Canal Zone was starting a manual system for recording maintenance, repair, and construction costs for each building in the family housing inventory, by location. The new system will show for each building all maintenance, repair, and construction work performed monthly, annually, and on a 10-year-cumulative cost basis, as well as the cost limit for the 10-year period. The new system will show also the long-range maintenance plan.

An Army housing official in the Canal Zone advised us that this system was considered to be necessary because the cost system then in effect did not provide data that could be used to manage housing effectively. The official believes that the planned new system will give management a better basis for programming annual work in terms of funds and manpower, planning long-range improvement programs, and evaluating whether houses (buildings) should or should not be replaced.

We noted instances where intermediate commands of DOD components had transmitted consolidated family housing cost reports to installations within their jurisdiction with instructions to make comparisons of their costs with those of other bases. These comparisons are apparently intended to help in determining where corrective actions are required or management improvement is needed.

Management officials at installation level indicated to us that there were wide variations in costs reported by various installations within the command. These, however, could not be readily analyzed because of the lack of knowledge of housing characteristics that could effect differences in unit costs at various installations. We believe that, under the present system, such comparisons have limited value for the reasons cited. Under an expanded system, however, such comparisons could be very useful.

We were informed at one intermediate command that the cost reports produced at installations were of value because they were the only means of control over the subordinate installations within the command. Although this intermediate command relies on the present cost data for cost control, the shortcomings of the cost accounting system cited in our report, in our opinion, dilute the command's control over its subordinate installations.

In another case, a DOD component had initiated efforts to improve management control over costs of operating and maintaining family housing. At the time of our fieldwork in November 1969, attempts were being made to establish more realistic unit cost targets for comparative analysis. These targets were intended to emphasize what costs should be rather than to continue an unquestioned acceptance of

recorded costs. The objective was to improve management of resources and reduce annual expenditures for operating and maintaining family housing.

The unit cost targets established are based on worldwide summary data, however, and are distorted through the averaging effect cited in our report. Differences due to varying age, size, type of construction, condition, and geographical location of units are, in our opinion, averaged out through use of such summary data.

The situations discussed above are cited to illustrate that DOD components are attempting to achieve a greater degree of control over costs to improve management of resources. Since a measure of time and effort is already being devoted to improving cost controls by DOD components (see also the attempt being made by the Navy to identify when it is economical to replace or continue to maintain family housing, p. 27 of this report), we believe that the Office of the Secretary of Defense should centrally direct and coordinate these efforts and should take the lead in establishing standards based on a more homogeneous and more valid categorization of housing. We believe also that this would be beneficial in identifying indications of excessive costs or excessive levels of maintenance and in focusing attention on inefficient or uneconomical maintenance organizations.

DOD has recognized that a capability to compare similar housing units would be quite useful but has stated that providing the larger number of categories required would increase the work load and would not offer benefits commensurate with the additional cost required.

We agree that, if the costs to expand the system outweigh the benefits to be derived, the system should not be expanded. We believe, however, that the added benefits from an expanded categorization should be obtainable at an economical cost. Although DOD has indicated that the additional costs would outweigh the benefits, it has not furnished information concerning the possible additional cost required nor concerning the cost of maintaining the existing system.

We attempted to obtain the costs of operating the present cost accounting system to gauge the probable cost impact of expansion of the system. We found that DOD had not determined the cost of operating the present system, but a cognizant DOD official informed us that in his opinion the cost would be minor.

RECOMMENDATIONS

We recommend that the Secretary of Defense determine the additional cost of expanding the system of categorization of family housing and measure it against the benefits to be obtained. The expansion would provide for a more homogeneous categorization of family housing for accumulating and reporting operation and maintenance cost data, taking into account size, age, type of construction, and condition of units.

If it is determined that expanding the present cost accounting system is not economically feasible, we then recommend that consideration be given to simplifying it. We believe that the summary data produced by the system has limited usefulness for making valid comparisons. Under such circumstances, it might be sufficient to limit the categorization, by installation, to public quarters, inadequate or substandard quarters, and flag- or general-officer quarters.

CHAPTER 3

INACCURATE AND INCOMPLETE COSTS

RECORDED IN ACCOUNTING RECORDS

Our review at 14 selected Army, Navy, and Air Force installations showed that costs recorded in the accounting records for the operation and maintenance of family housing were inaccurate and incomplete in a number of cases. The deficiencies stemmed principally from (1) improper allocation of costs among housing accounts, (2) failure to include all applicable costs in the family housing accounts, (3) inappropriate methods for determining utility usage, and (4) errors in determining utility costs. In our opinion, more definitive and comprehensive instructions providing a greater degree of uniformity would eliminate many of the deficiencies we identified.

During our review, we were unable to determine the total effect of the observed deficiencies because of the nature of the items and the unavailability of information at the installations. Although many of these deficiencies on an individual-item basis may not be considered material, they tend, from a cumulative standpoint, to render invalid any comparison among military installations and services.

For example, at Fort Dix, New Jersey, we found that the total reported operation and maintenance costs for selected accounts for family housing were understated by about \$135,600, or about \$60 per housing unit. At McChord Air Force Base, Washington, our analysis of charges to the administration accounts for the various categories of housing disclosed discrepancies which had the following estimated effect for the 6-month period ended December 31, 1968.

<u>Administration costs</u>	<u>Administration accounts</u>			
	<u>Encumbered housing</u>	<u>Substandard housing</u>	<u>Appropriated-fund housing 1950 and after</u>	<u>Other public quarters</u>
Total costs reported:				
Overstated	\$3,797	\$ 248		\$ 490
Understated			\$2,265	
Cost per unit:				
As reported	\$23.15	\$19.30	\$ 8.21	\$33.13
GAO estimated cost	16.82	16.82	16.82	16.80

We did not include supply costs or unrecorded Base Civil Engineer administrative employee costs in our estimate because these costs were not segregated and no reasonable estimate of the amount involved could be made.

Similarly, at Fort Lewis, Washington, our review of the allocation of administration costs to the selected housing accounts disclosed improper allocation of costs. We found also an erroneous charge for an employee's salary. These discrepancies had the following estimated effect on the selected administration housing accounts for the 6-month period ended December 31, 1968.

<u>Administration costs</u>	<u>Administration accounts</u>		
	<u>Encumbered housing</u>	<u>Appropriated-fund housing 1950 and after</u>	<u>Other public quarters</u>
Total costs reported:			
Overstated	\$7,593		\$3,029
Understated		\$10,210	
Cost per unit:			
As reported	\$40.61	\$ 27.23	\$45.72
GAO estimated cost	36.39	34.00	36.99

We found discrepancies in the utilities accounts at McChord Air Force Base and Fort Lewis that had an effect on the reported cost per unit but to a much lesser extent than that found in the administration accounts.

QUESTIONABLE VALIDITY OF REPORTED COSTS

Our test of the July 1, 1968, through December 31, 1968, charges to the selected administration, utilities, and maintenance summary cost accounts for encumbered housing, appropriated-fund housing, substandard housing, and other public quarters revealed numerous discrepancies. The nature of these discrepancies is summarized in the following schedule.

<u>Nature of discrepancy</u>	<u>Nature of Discrepancies at 14 Selected Installations</u>		
	<u>Number of installations at which discrepancy occurred</u>		
	<u>Army</u>	<u>Navy</u>	<u>Air Force</u>
Administration account:			
Unrecorded indirect salary costs	3	3	4
Unrecorded direct salary costs	1	-	-
Misclassification of costs	-	1	1
Key punch costing errors	-	-	2
Improper or unrecorded vehicle-usage costs	-	1	1
Unrecorded material costs	-	1	2
Improper allocation of costs	4	1	1
Errors in computing civilian and/or military labor costs	1	-	2
Unrecorded cost of telephone service and other costs	1	-	1
Cost records for General-officer quarters not maintained or reported	-	-	1
Utilities account:			
Questionable methods for determining utility usage	2	2	3
Improper and/or inadequate determination of utility rates	1	3	4
Improper allocation of costs	-	1	1
Errors in costing utility charges	3	3	2
Maintenance account:			
Unrecorded maintenance charges	1	1	1
Unrecorded and/or improper costing of vehicle usage	-	2	-
Costing errors	1	2	1
Weak maintenance practices	-	2	1

Following are selected examples of some of the deficiencies we found, identified with the specific installations we visited.

UNRECORDED INDIRECT SALARY COSTS

DOD Instruction 7220.16, dated May 18, 1964, and the corresponding Army, Navy, and Air Force regulations state that administrative or administrative services costs incurred for family housing work at the installation maintenance offices should be excluded from family housing costs where the presence of family housing does not result in an "identifiable increase in work capability."

Our review disclosed that generally administrative costs incurred at the installations' maintenance offices were not being charged to the family housing administration account, even though the personnel involved were spending a significant portion of their time on family housing work.

For example, at Homestead Air Force Base, Florida, we identified nine administrative employees, both military and civilian, who spent from 50 to 100 percent of their time on housing-related work during fiscal year 1969 but charged no time to family housing. We identified three other employees who spent about 25 percent of their time on housing-related work but charged no time to family housing. In addition, 26 other employees spent up to 20 percent of their time in housing work. The estimated applicable labor cost for these 38 employees was about \$54,000 for fiscal year 1969.

At Fort Lewis we were advised that five maintenance office administrative employees spent at least 25 percent of their time on family housing matters; however, no portion of their salary was charged to family housing during the period covered by our review.

At Fort Hamilton, New York, our review disclosed that a 19-percent factor was applied to total personnel costs of the Post Engineer's administration account to arrive at a charge to family housing for indirect administrative labor expenses. For the 6-month period ended December 31, 1968, these charges approximated \$40,000, or about \$27 a unit. On April 1, 1969, the 19-percent charge was terminated, apparently on the basis of DOD Instruction 7220.16.

Discontinuance of the charge for indirect administration expenses is questionable, inasmuch as several Post

Engineer employees have informed us that they spend a major portion of their time on family housing administrative matters.

At the Naval Station, New York, we were advised by officials that allocations of Public Works administrative labor costs to family housing accounts were made for its Long Island Annex on the basis of estimates of time consumed by several administrative employees whose duties related principally to family housing. No allocations of labor costs, however, were made for the several administrative employees who were involved to some extent in family housing activities at the Naval Station in Brooklyn.

The practices followed by the various installations indicated a need for more specific guidelines and greater uniformity among the services in allocating indirect administration expenses. In our opinion, these types of costs are a proper and directly identifiable charge for operating and maintaining family housing and should be charged to the family housing account. To clearly provide for charging such labor costs, we believe that the DOD Instruction and related Army, Navy, and Air Force regulations covering indirect administrative costs should be revised.

Additional examples of the types of discrepancies we found are shown in appendix I.

CONCLUSIONS

In our opinion there is a need to improve the effectiveness of the accounting system for recording and controlling the costs to operate and maintain family housing at the installations we reviewed. As illustrated by the foregoing examples and the examples shown in appendix I, the cost accounting system prescribed for recording and reporting operation and maintenance costs does not provide accurate, complete, and reliable cost information for management purposes.

Although comparisons are being made by management at various levels, including DOD, the usefulness of such comparisons is adversely affected by differences among DOD installations in accumulating and recording cost data. We believe that more meaningful comparisons could be made if DOD were to provide a larger measure of uniformity in its controlling regulations.

In our opinion costs of operating and maintaining family housing should be accumulated and recorded at each location by using the same principles, procedures, and internal controls. This would ensure that the costs for maintenance and operation recorded for a particular type or category of housing at one location would contain essentially the same cost factors as those recorded at other locations and would provide a basis for meaningful comparisons.

AGENCY COMMENTS AND GAO EVALUATION

In our draft report of July 20, 1970, we suggested that the Secretary of Defense issue more comprehensive and definitive directions designed to avoid the more salient variations in recording and reporting of operation and maintenance cost data among DOD installations.

In commenting on our suggestion, DOD agreed that their instructions could be more definitive and that a working group was in the process of developing recommendations to clarify current instructions to ensure more uniform implementation and interpretation.

The actions being taken by DOD appear to be responsive to the intent of our suggestion. As we program future work in this area, we intend to review the clarifications made and the application of the revised instructions to determine whether they will result in more uniform implementation and interpretation.

We suggested also in our draft report that the internal audit efforts of the military services emphasize coverage of this area in their regularly scheduled audits of family housing activities.

In commenting on this suggestion, DOD stated that internal audit coverage had been provided, consistent with the significance of an operation and overall audit priorities. Pursuant to this policy, family housing operations were audited during comprehensive installation audits. This coverage will be continued in the future and will continue to emphasize adherence to the requirements of DOD issuances.

DOD's intent to continue audit coverage of this area in the future and to emphasize adherence to the requirements of DOD issuances appears to be responsive to our suggestion.

CHAPTER 4

NEED TO PHASE OUT UNECONOMICAL

FAMILY HOUSING UNITS

The DOD inventory of family housing contains many units which, according to DOD, are no longer economical to operate and maintain. A substantial portion of these high-cost quarters are assigned to flag and general officers or to senior-grade officers, such as Navy captains or Army, Air Force, and Marine Corps colonels. We were informed that quarters assigned to these officers were generally quite large and quite old. Information provided by DOD indicated that many of these quarters were built 50 to 75 years ago. Historically, operation and maintenance costs for these quarters have been high.

As mentioned on page 8 of this report, operation and maintenance cost data are accumulated and reported upon by broad categories of housing rather than by individual units or more homogeneous categories. Consequently, except for general- and flag-officer quarters, for which costs are presently accumulated and reported on an individual-unit basis, no identification is possible of family housing units, such as those designated for senior-grade-officer occupancy, that incur high costs.

We understand that there are many larger quarters in DOD designated for occupancy by officers of less than general- and flag-officer grade. For example, the following schedule shows the approximate number of larger quarters by designated grade level within the Department of the Army. These units are considered to be "oversize" units and are so classified when they exceed by 40 percent or more the maximum net square foot allowance by grade for new construction as covered by public law.

Colonel	630
Field-grade officer	940
Company-grade officer	120
Noncommissioned officer	250

The high cost of maintaining and operating many of the 904 flag- and general-officer quarters comprising the fiscal year 1968 DOD inventory of such quarters is shown in the following schedule of reported operation and maintenance costs.

<u>Cost range</u>	<u>Total units</u>
\$ 0 to \$ 1,000	123
1,000 to 5,000	587
5,000 to 10,000	133
10,000 to 15,000	36
15,000 to 20,000	11
Over 20,000	<u>14</u>
	<u>904</u>

The operation and maintenance costs recorded for these quarters are the same types as those recorded for all categories of DOD housing and include costs for such items as administration; services; utilities; furniture and furnishings; repairs and maintenance of dwellings and other surrounding real property (landscaping); and alterations and additions.

REPRESENTATIONAL QUARTERS

About 65 of the general- and flag-officer quarters in the DOD inventory are considered "representational quarters." Representational quarters are occupied by a general or flag officer or civilian official holding a position designated as a "military representational position." The public relations responsibilities of these individuals require them to represent the United States in official and social entertainment activities. We believe that, because of the unique responsibilities of the occupants, these quarters, along with certain others having historical significance, should be considered separately in any plan to phase out quarters which are unduly costly to maintain.

HIGH-COST UNITS IN INVENTORY

Examples of high-cost units in the DOD inventory follow.

At the Naval Air Station, Pensacola, Public Works Center officials estimated the cost of improvements, maintenance, and repairs on individual family housing units for fiscal years 1964 through 1968.

We found that 17 of these units built prior to 1900 had estimated costs of operation and maintenance ranging from about \$3,000 to about \$72,800 during fiscal years 1964 through 1968; nine of the 17 units had estimated costs ranging from about \$11,900 to about \$24,400 during the same 5-year period.

For three of these units, we were able to obtain the actual operation and maintenance costs for fiscal years 1968 and 1969. We substituted the actual cost for fiscal year 1968 for the estimated cost for that year and added the actual cost for 1969. Thus, the total estimated and reported costs for these three units for the 6-year period, fiscal years 1964 through 1969, are as follows:

Quarters No.	Estimated				Reported		Total
	Fiscal	Fiscal	Fiscal	Fiscal	Fiscal	Fiscal	
	year 1964	year 1965	year 1966	year 1967	year 1968	year 1969	
1	\$5,465	\$18,036	\$15,033	\$6,895	\$27,375	\$14,852	\$87,656
4	9,660	1,375	5,657	3,818	3,934	11,996	36,440
5	2,738	4,463	1,452	2,174	1,731	2,136	14,694

Presently, the legal cost limitation for construction of new family housing in the contiguous United States is an average of \$23,000 a unit and no single unit may exceed a cost of \$40,000. The operation and maintenance costs for a number of the 17 units at Pensacola seem disproportionately high in relation to allowable replacement costs.

We found that an economic study of a dwelling unit in the Panama Canal Zone had been made and had showed that costs for a 10-year period for operation, maintenance, and alterations were estimated to be \$62,990. The fiscal year 1968 cost report for this dwelling showed that operation and maintenance expenditures for this unit exceeded \$24,000 for the fiscal year. In fiscal year 1969 about \$11,500 was spent to operate and maintain this unit. We found yet another dwelling unit in the Canal Zone for which expenditures of \$6,932 and \$31,483 were made for fiscal years 1968 and 1969, respectively, a total of \$38,415.

Examples of other general- and flag-officer quarters incurring high operation and maintenance costs in the Army, Navy, and Air Force are shown in appendix II. As shown in the appendix, many of the quarters exceeded \$10,000 in operation and maintenance costs for the 2-year period, fiscal years 1968 and 1969. A number of these quarters contain more than 5,000 square feet in space and some more than 10,000 square feet.

Appendix III shows, by comparison, the approximately 43 general- and flag-officer quarters constructed for DOD since fiscal year 1962. Construction costs for these units ranged from about \$19,890 to about \$35,000 a unit. Square footage constructed for the quarters ranged from 1,806 to 2,310 square feet. We found that the operation and maintenance costs incurred on 20 of these units for the fiscal years 1968 and 1969 ranged from \$1,227 to \$3,648 and the

average operation and maintenance cost on these units was about \$2,284 a unit for the 2-year period, or about \$1,031 a unit in fiscal year 1968 and about \$1,252 a unit in fiscal year 1969.

Operation and maintenance costs for fiscal years 1968 and 1969 were not reported on 23 of the units as the units were not completed and occupied until a later period. Four units for the Navy were under construction in Hawaii at a cost of about \$39,688 each. One unit for the Navy was approved for construction in California; however, the contract for construction had not been awarded as of March 31, 1970.

To illustrate the possible savings through replacement of old, high-cost quarters, we made an analysis of replacement cost versus continued operation and maintenance of Quarters 1 at the Naval Air Station, Pensacola. (See app. IV.) The analysis indicated that, over a period of 25 years, continued use of Quarters 1 would cost about 135 percent more than it would cost to demolish the old quarters and construct new quarters. The illustration utilizes the present-value technique of economic analysis (discounting) currently specified for use within DOD.

NO ACTION TAKEN TO PHASE OUT HIGH-COST QUARTERS

Our review disclosed virtually no action by DOD to phase out such quarters. In the fiscal year 1966 military construction authorization request, DOD requested authorization to construct two dwelling units at a cost of \$100,000 each. These units would serve as representational quarters and replace, in effect, existing quarters occupied by high-ranking officers at two installations. This request was not acted upon favorably by the Congress.

In the fiscal year 1970 military construction authorization request, DOD asked for authorization to replace inadequate Wherry housing at the Naval Station, Key West, Florida. However, these units, which can no longer be economically maintained or brought to standards of adequacy, are not really comparable to the high-cost, oversize dwelling units in the DOD housing inventory. Construction of 200 new housing units was authorized for the Naval Station, Key West. We are not aware of any other requests to the Congress by DOD for replacement of uneconomical units.

We discussed with DOD officials what plans, if any, they had for orderly replacement of high-cost family housing. We were informed that the Department was aware of the high-cost units in the inventory but that current replacement of these units must be deferred due to higher priority requirements such as construction of new housing. We were informed that, when conditions became more favorable, the Department hoped to implement a program of improvement and replacement.

We noted that the Department of the Navy had a family housing modernization and replacement study under way which would identify the point in time when it was more economical to modernize or replace a family housing unit than to continue routine maintenance of it.

CONCLUSIONS

In our opinion, high-cost quarters which are needed but are no longer economical to operate and maintain should be replaced. A concerted effort should be made by DOD to identify dwelling units no longer economical to operate and maintain for presentation to the Congress as candidates for replacement.

We believe that the Congress should be made aware of the extent to which quarters uneconomical to operate exist in DOD. This would enable the Congress to evaluate the continuing need for these uneconomical dwelling units; to consider the feasibility of replacing the units in relation to competing DOD requirements, including the requirement for construction of new housing; and to consider the potential savings in future operation and maintenance costs which would accrue through replacement.

AGENCY COMMENTS AND GAO EVALUATION¹

In our draft report dated July 20, 1970, we suggested that the Secretary of Defense provide the Congress, in the annual construction authorization requests, with a plan for the phased, orderly replacement of family housing units no longer economical to operate and maintain.

In commenting on the above suggestion, DOD agreed that there should be a phased plan for the orderly replacement of family housing units no longer economical to operate and maintain. DOD indicated that, as soon as their more urgent priorities were met, a specific request would be presented to Congress for authorization and funds to replace uneconomical housing.

DOD recognizes that a plan for orderly replacement of uneconomical housing units should be undertaken. They have indicated, however, that more urgent priorities must be filled before such a plan can be implemented. Thus, presentation of such a plan would remain until some indefinite future period.

We believe that, even though more urgent priorities must be met before replacement of uneconomical housing can be undertaken, the Congress should be made aware of the extent of the inventory of such housing in DOD. This would enable the Congress to consider the merits of authorizing

¹Specific points raised by DOD in connection with our hypothetical economic analysis appearing in app. IV are dealt with in that appendix.

current expenditures to achieve future savings in operation and maintenance costs and to evaluate the need for replacing uneconomical housing in relation to the other urgent priorities mentioned by DOD.

THE CONGRESS MAY WISH TO CONSIDER
REQUESTING AND EVALUATING A DOD INVENTORY
OF UNECONOMICAL HOUSING

In view of the indefinite nature of the DOD intention for presenting a plan for replacement of uneconomical housing, the Congress may wish to consider requesting DOD to present an inventory of uneconomical housing. Such information would enable the Congress to determine the extent and nature of uneconomical housing and to evaluate and consider a program for replacement of the housing in relation to the other urgent priorities which DOD considered to be of greater importance.

APPENDIXES

EXAMPLES OF DEFICIENCIES FOUND

AT SELECTED INSTALLATIONS

Unrecorded direct salary costs

At Fort Dix, New Jersey, the family housing administration account was understated by about \$9,232 for the 6-month period ended June 30, 1969, because the salaries of three civilian employees assigned to the Family Housing Division were not charged to the account. These salaries were being absorbed by the Billeting Division.

The Billeting Division during this period was authorized a complement of five civilian personnel whereas the Family Housing Division was authorized nine civilian personnel. We found that, despite the authorizations established, 12 of the 14 civilians were actually assigned to the Family Housing Division and two to the Billeting Division. The three civilians in excess of authorization in the Family Housing Division were not charged to this Division although actually employed by the Division.

Improper or unrecorded vehicle-usage costs

DOD Instruction 7220.16, dated May 18, 1964, requires vehicle-usage charges to be computed on the basis of actual usage and cost or on the basis of equipment rental rates furnished in the instruction. At the Naval Air Station, Whidbey Island, Washington, however, vehicle-usage charges were made to the accounts based on the estimated usage and, in some cases, the estimated hourly rental rate.¹ At Homestead Air Force Base, Florida, the housing office had two vehicles assigned on a full-time basis, but only one of the vehicles was being charged to the family housing accounts.

We were unable to determine the actual effect of these items on the account because no records were maintained for vehicle usage.

¹This was not the equipment-rental rate furnished in DOD Instruction 7220.16.

APPENDIX I

Unrecorded material costs

Office supplies used in the family housing offices at two Air Force bases and a Naval Air Station were not being charged to the family housing accounts. Installation personnel were unable to furnish us an estimate of the dollar amount of supplies used because no usage or cost records were being maintained for this item.

Improper allocation of costs

The administrative costs charged to each category of housing at six installations--4 Army, 1 Navy, and 1 Air Force--were incorrect because of the improper allocation of the administration cost among the five housing categories. Although these improper allocations had no effect on the total administration cost reported, they did have an effect on the administration cost per unit for each category of housing. The misallocations occurred primarily for one of the following reasons: (1) failure to include all applicable units in the percentage computations, (2) errors in computing the percentage, or (3) failure to use a percentage allocation.¹

For example, at Fort Lewis, Washington, the administration costs were to be allocated to the accounts pertaining to each category of housing on the basis of the number of housing units in each category. We found that predetermined percentages for this allocation were incorrectly computed. We found also that the administration costs actually being accumulated in the individual accounts agreed with neither the incorrect nor with the correct predetermined percentage.

At McChord Air Force Base, Washington, the administration costs were being allocated to the accounts pertaining to each category of housing on the basis of each administrative employee's estimate of where he spent his time rather than on the basis of the number of units in each category of housing.

¹DOD Instruction 7220.16 provides that generally accepted overhead allocation procedures may be used for costing supervisory, clerical, and other indirect costs to family housing.

At the Naval Station, Key West, Florida, administrative labor costs were improperly allocated to the accounts for the various housing categories because previously established percentages were not adjusted to encompass additional housing units included in the housing inventory about September 1968. This discrepancy did not affect the total housing cost but did affect the cost for administrative labor charged to each housing category.

Questionable methods for
determining utility usage

DOD Instruction 7220.16 also requires that the quantities of utilities consumed shall be determined by meter readings where meters are available or by engineering analysis based on sampling where it is not economically feasible to install and use meters. During our review we noted, however, that in several instances utility usage was being determined in questionable ways.

At McChord Air Force Base, electricity costs for 243 of the 993 family housing units were determined by using the estimated consumption rates specified for a particular type of floor plan in a rescinded Air Force Regulation. We were advised that no test metering had been done nor were any engineering estimates prepared to check on the amounts being prorated although the Budget Officer at the Base Civil Engineer office felt that the current allocation was too low.

At Fort Lewis, electricity consumption was determined on the basis of the ratio of family housing population to total installation population. This method of allocation was based on Continental Army Command Regulation 210-2, dated 12 June 1963, which had been rescinded on January 1, 1969. This method was used also for determining the water and sewage volumes for all family housing units at Fort Lewis.

We found that the cost of electricity was understated by approximately \$1,700 and the cost of water and sewage was overstated by approximately \$5,000 for the first 6 months of fiscal year 1969, because the population and cost figures

APPENDIX I

used in the formula for allocating these utilities to family housing were improperly computed.

At the Naval Air Station, Whidbey Island, electricity usage for 43 family housing units was based on the average household consumption for the Seattle area. The water usage rate for 286 family housing units was based on the number of individuals in the units and the estimated occupant usage rate.

At the Naval Station, New York, we found that the Station's Mitchell Field, Long Island, family housing (111 units of other public quarters) and other Navy structures occupy areas contiguous to Nassau County Community College facilities. The utilities used by the Navy at Mitchell Field are controlled by Nassau County. There are no Navy utility meters. Nassau County purchases electricity and gas utilities on a bulk basis and resells them to the Navy.

We noted that the Naval Station was billed for electricity and gas by Nassau County on the basis of estimated fixed-average consumption data for each housing unit. The engineering basis for determination of the estimated consumption data was not available.

Our review revealed that the utility charges were highly questionable because of the County's policy of billing the Navy at higher tariff rates geared to individual housing unit consumption rather than on the basis of consolidated usage of all Naval facilities. Nassau County receives the benefit from the utility company of low tariff rates based on total consumption for the entire complex to which the Navy, by operation of its facilities, contributes. The County, however, does not pass along these lower rate savings to the Navy on a prorata or conjunctive basis.

In view of the economies that might be effected, the Navy should initiate negotiations with Nassau County for more equitable rates.

At Mitchell Manor, Long Island, the Navy's 511 encumbered family housing units are directly serviced with electricity and gas by the utility company. There are eight electricity meters and 41 gas meters serving the entire family housing complex. Since each meter is billed by the

utility company as a separate account and since the rates are decreased with increased consumption, it appears that the Navy might be able to realize significant savings by negotiating rates based on total combined usage for the entire complex. An alternative could be to study the economic feasibility of converting from multiple meters to individual master meters for electricity and gas.

Preliminary estimates indicated that annual savings of approximately \$37,000 might be realized by the use of conjunctive and single-meter billings. Installation officials agreed with our views and informed us that their engineering support organization, Eastern Division, Naval Facilities Engineering Command, would be requested to study the matters and to enter into negotiation with Nassau County and the utility company to effect more favorable charges to the Government.

APPENDIX I

Improper and/or inadequate determination of utility rates

At Westover Air Force Base, Massachusetts, we found that the rates for charging sewage costs to family housing were not adjusted annually as provided for in Air Force Manual 170-5, section 4-4 f (1). The manual states that, at the beginning of each fiscal year, rates for base-generated utilities will be determined on the basis of the pertinent utility cost accounts, minus military labor costs, for the previous fiscal year as applied to units produced or processed.

Our review of the sewage rates used at Westover in charging sewage costs to military family housing showed that the rate of 6.11 cents per thousand gallons was established on the basis of costs and quantity processed during fiscal year 1966. This rate was properly used in making sewage charges for fiscal year 1967; however, no recomputation of the rate was made for use in fiscal years 1968 and 1969 and the 1967 rate was used in computing the charges for these 2 years.

We found that, if the sewage cost rate had been properly computed at June 30, 1968, and used to cost sewage for fiscal year 1969, the rate would have been 10.91 cents per thousand gallons and the amount charged to family housing for the first half of the fiscal year would have been \$8,372 rather than the \$4,689 actually charged.

We were informed by personnel of the Base Civil Engineer office at Westover that charges for sewage for fiscal year 1970 would be made at a rate computed in accordance with the Air Force Manual.

At the Air Force Academy, Colorado, we found that charges for the installation's sewage plant were based on 60 hours of plant operation labor a month. This charge, which was said to have been unchanged for the last 4 or 5 years, was based on a study made several years ago of family housing usage in relation to total base usage. This method has not been in conformance with the prescribed method since at least December 1966. Further, there has been a substantial increase in total base usage of the sewage

plant as a result of a \$40 million expansion of facilities within the last 5 years. An official in the Base Civil Engineer office agreed that family housing now bears an excessive share of the sewage plant costs.

Errors in costing utility charges

At Homestead Air Force Base, Florida, we found that improper costing of purchased electricity resulted in overstating the charge to family housing by about \$4,046 as of December 31, 1968. Improper costing included (1) clerical errors in computing the electrical billing for housing and (2) failure of the Cost Accounting Section to process credits to the housing accounts.

Electricity was charged to unmetered housing on the basis of a percentage factor computed by relating the metered to the unmetered units. An incorrect factor was being used which tended to understate the electrical billings for housing.

In January 1969 the local power and light company issued credits for electrical billings for the months of November and December 1968, and January 1969. Housing was supposed to be credited in the same proportion as it had been previously charged for the electrical billings involving these months. The documents for processing the credits to housing were available, but personnel in the Cost Accounting Section could not explain why they had not processed the credits at any time during fiscal year 1969.

At Fort Dix, New Jersey, our review of heating fuel oil costs for the month of December 1968 disclosed that the family housing account was overstated by about \$300. This overstatement was the result of charging the accounts with the cost of fuel oil delivered to other than family housing. Conversely, due to an oversight on the part of the Post Engineer, the costs of electricity were understated by about \$200 for the year.

Although these incorrect charges involve only nominal amounts, we believe that they indicate the need for better controls over this major cost category (utilities) which represents about one third of the total costs incurred to operate the family housing program during fiscal year 1969.

Unrecorded maintenance charges

At the Naval Station, Key West, Florida, we found that labor costs for various supervisory maintenance personnel, whose duties included a significant amount of work on family housing, were not charged to the housing accounts. Each of the 10 persons involved estimated that from 5 to 100 percent of his time was devoted to housing-related activities.

One supervisor, at a salary of about \$10,000 a year, was assigned full time to a maintenance service center which operated exclusively for family housing. None of the labor costs for this position, however, were charged to housing in fiscal year 1969. We discussed this matter with housing officials and were advised on August 4, 1969, that this procedure had been changed and that the supervisor's time was now being charged entirely to family housing.

We found that three other individuals spent from 50 to 70 percent of their time on housing; that one individual spent about 45 percent of his time on housing; and that a fifth individual spent about 25 percent of his time on housing. Since these individuals spent a significant amount of their time on work related to housing, we believe that a proportionate amount of their labor cost should be charged to the family housing accounts.

APPENDIX II

EXAMPLES OF HIGH OPERATION AND MAINTENANCE
 COSTS FOR FLAG- AND GENERAL-OFFICER QUARTERS TAKEN FROM REPORTS FOR
 FISCAL YEARS 1968 AND 1969

DEPARTMENT OF THE ARMY

		Fiscal year <u>1968</u>	Fiscal year <u>1969</u>	Total fiscal years <u>1968 and 1969</u>	Reported <u>square feet</u>
FORT McNAIR, WASHINGTON, D.C.:					
Quarters	2A	\$ 9,441	\$10,774	\$20,215	6,758
"	4A	13,466	13,168	26,634	6,758
"	5A	7,884	6,697	14,581	6,758
"	10A	7,296	8,977	16,273	6,758
"	11A	8,186	6,574	14,760	6,758
"	12A	9,880	10,381	20,261	6,758
"	13A	8,842	15,097	23,939	6,758
"	14A	9,035	12,991	22,026	6,758
"	15A	8,748	11,782	20,530	6,758
FORT MYER, VA.:					
Quarters	5	7,158	4,763	11,921	4,481
"	8	15,861	3,543	19,404	5,222
"	11A	6,073	7,390	13,463	3,244
"	15B	1,984	13,268	15,252	3,794
"	23A	6,038	6,285	12,323	2,945
"	27B	4,831	11,749	16,580	4,200
FORT MONROE, VA.:					
Quarters	1	7,892	4,337	12,229	6,470
"	118	4,716	13,138	17,854	7,640
"	120	1,432	11,521	12,953	4,250
"	141	9,768	7,887	17,655	4,930
FORT SAM HOUSTON, TEX.:					
Quarters	2	10,725	3,754	14,479	2,837
"	6	4,051	8,744	12,795	5,198
"	11	7,619	4,843	12,462	2,837
FORT SHERIDAN, ILL.:					
Quarters	54	6,747	4,934	11,681	5,856
"	9	4,665	18,729	23,394	10,716
PRESIDIO OF SAN FRANCISCO, CALIF.:					
Quarters	1	14,997	2,170	17,167	4,306
"	1332	7,714	3,163	10,877	4,306
"	1337	11,164	3,238	14,402	4,218
FORT BENNING, GA.:					
Quarters	100	4,564	4,811	9,375	7,067
FORT STEWART, GA.:					
Quarters	1401	9,521	4,912	14,433	6,530
FORT LEAVENWORTH, KANS.:					
Quarters	605 Scott	6,130	5,907	12,037	7,342
FORT CARSON, COLO.:					
Quarters	2302	4,009	4,514	8,523	2,985
FORT LEWIS, WASH.:					
Quarters	1	7,554	3,996	11,550	3,190
FORT ORD, CALIF.:					
Quarters	327	4,198	5,776	9,974	4,964
ROCK ISLAND, ILL.:					
Quarters	1	5,104	8,686	13,790	19,100
FITZSIMONS GENERAL HOSPITAL, COLO.:					
Quarters	1	1,829	8,690	10,519	4,319

APPENDIX II

DEPARTMENT OF THE NAVY

	Fiscal year <u>1968</u>	Fiscal year <u>1969</u>	Total fiscal years <u>1968 and 1969</u>	Reported <u>square feet</u>
NAVAL SHIPYARD, BOSTON, MASS.: Quarters G	\$11,986	\$ 4,231	\$16,217	10,400
PUBLIC WORKS CENTER, NEWPORT, R.I.: Quarters A	5,475	7,874	13,349	6,400
" AA(b)	13,652	7,813	21,465	6,000
" FA-1	8,972	1,820	10,792	6,300
PORTSMOUTH NAVAL SHIPYARD, N.H.: Quarters A	3,352	7,861	11,213	8,700
NAVAL STATION, BROOKLYN, N.Y.: Quarters A	13,487	19,317	32,804	9,700
" C	5,586	10,256	15,842	8,200
" I	2,944	9,259	12,203	6,000
" R-1	7,618	6,658	14,276	7,500
SUBMARINE BASE, NEW LONDON, CONN.: Quarters C	6,985	6,012	12,997	4,000
NAVAL SHIPYARD, PHILADELPHIA, PA.: Quarters M	3,741	10,501	14,242	4,400
PUBLIC WORKS CENTER, NORFOLK, VA.: Quarters A-39 Jamestown	8,802	1,945	10,747	4,000
" F-2 "	3,453	8,607	12,060	7,000
" F-32 "	32,637	7,771	40,408	12,000
" G-8 "	9,690	3,423	13,113	7,000
" G-30 "	18,988	15,133	34,121	16,000
" G-31W "	9,132	2,844	11,976	6,000
" H-27 "	8,892	3,736	12,628	5,000
" WH-A "	11,821	2,191	14,012	3,000
" M-3 "	6,866	16,616	23,482	7,000
" M-5 "	5,110	15,840	20,950	9,000
" M-6 "	8,978	5,096	14,074	7,000
NAVAL AMPHIBIOUS BASE, LITTLE CREEK, VA.: Quarters D-1	6,446	8,068	14,514	3,100
MARINE CORPS AIR STATION, CHERRY POINT, N.C.: Quarters 317	5,325	6,557	11,882	3,100
" 318	5,484	4,952	10,436	3,400
NAVAL STATION, KEY WEST, FLA.: Quarters A	8,912	17,327	26,239	8,200
NAVAL STATION, CHARLESTON, S.C.: Quarters A	13,962	13,254	27,216	7,400
" G	2,113	10,926	13,039	6,500
" Z	8,298	5,801	14,099	3,100
NAVAL AIR STATION, CORPUS CHRISTI, TEX.: Quarters A	4,414	12,841	17,255	5,500
NAVAL AIR STATION, MEMPHIS, TENN.: Quarters 551	9,307	3,058	12,365	4,000
HEADQUARTERS, NAVAL SUPPORT ACTIVITY, NEW ORLEANS, LA.: Quarters A	7,178	12,178	19,356	6,500
PUBLIC WORKS CENTER, GREAT LAKES, ILL.: Quarters AA	12,985	17,074	30,059	7,500
PUBLIC WORKS CENTER, NAVAL TRAINING CENTER, SAN DIEGO, CALIF.: Quarters A	4,364	10,452	14,816	5,600
NAVAL SECURITY STATION, WASHINGTON, D.C.: Quarters A	9,473	4,039	13,512	5,300
NAVAL STATION, WASHINGTON, D.C.: Quarters B Potomac Annex	12,319	5,311	17,630	5,200
" C " "	4,187	13,404	17,591	5,200
" A Navy yard	5,809	16,945	22,754	10,300
NAVAL AIR TEST CENTER, PATUXENT RIVER, MD.: Quarters A	5,376	9,833	15,209	7,000

DEPARTMENT OF THE AIR FORCE

	Fiscal year <u>1968</u>	Fiscal year <u>1969</u>	Total fiscal years 1968 and <u>1969</u>	Reported square feet
McCLELLAN AIR FORCE BASE, CALIF.: Quarters 100	\$10,143	\$1,632	\$11,775	3,781
ROBINS AIR FORCE BASE, GA.: Quarters 400	2,721	4,986	7,707	3,499
WRIGHT-PATTERSON AIR FORCE BASE, OHIO: Quarters A " K	24,854 900	1,956 7,696	26,810 8,686	5,403 3,923
PATRICK AIR FORCE BASE, FLA.: Quarters 3573	6,008	5,414	11,422	3,573
KEESLER AIR FORCE BASE, MISS.: Quarters 6801	5,314	1,739	7,053	4,232
LOWRY AIR FORCE BASE, COLO.: Quarters 251	6,547	787	7,334	3,475
RANDOLPH AIR FORCE BASE, TEX.: Quarters 300	5,275	3,095	8,370	6,102
ANDREWS AIR FORCE BASE, MD.: Quarters (G)1318-1 " (H)1318-2 " (M)1508 " (N)1966	5,034 1,751 3,122 3,885	2,134 5,497 4,493 4,748	7,168 7,248 7,615 8,633	2,357 2,358 3,019 5,298
BOLLING AIR FORCE BASE, WASHINGTON, D.C.: Quarters F " G " H " I " J " L " M	3,501 1,968 3,997 4,725 1,971 4,435 5,062	4,457 5,334 5,368 4,977 5,122 3,098 5,866	7,958 7,302 9,365 9,702 7,093 7,533 10,928	2,406 2,406 2,406 2,406 2,406 2,406 2,406
HICKAM AIR FORCE BASE, HAWAII: Quarters (D) Bldg. 550 " (A) Bldg. 656	6,161 6,535	1,365 8,670	7,526 15,205	2,569 4,905
OFFUTT AIR FORCE BASE, NEB.: Quarters 12 " 16	3,475 3,395	3,883 4,645	7,358 8,040	5,319 7,312
MacDILL AIR FORCE BASE, FLA.: Quarters 402 " 405 " 406	1,990 717 18,306	5,076 8,888 3,966	7,066 9,605 22,272	3,286 3,286 2,944

APPENDIX III

EXAMPLES OF FLAG- AND GENERAL-OFFICER QUARTERS
 CONSTRUCTED IN DOD SINCE FISCAL YEAR 1962
 SHOWING CONSTRUCTION COSTS AND OPERATION AND MAINTENANCE
 COSTS FOR FISCAL YEARS 1968 AND 1969 WHERE AVAILABLE

	Operation and maintenance costs			Fiscal year construction program	Approximate construction cost	Square footage
	Fiscal year 1968	Fiscal year 1969	Total fiscal years 1968 and 1969			
ARMY:						
Fort Jackson, S.C.:						
Quarters 3606	\$ 838	\$2,810	\$3,648	1965	\$21,890	2,310
" 3612	1,955	990	2,945	1965	19,890	2,100
Fort Buckner, Okinawa:						
Quarters 4261	1,890	739	2,629	1965	27,222	2,100
" 4265	1,490	1,564	3,054	1965	27,222	2,100
NAVY:						
Naval Station, Newport, R.I.:						
Quarters K (Bldg. 1000)			Not available	1968	34,879	2,050
Naval Complex, Long Beach, Calif.:						
Quarters 1037	1,842	979	2,821	1965	26,844	2,100
" 1038	697	2,705	3,402	1965	26,844	2,310
Okinawa (Commanding Officer, Fleet Air Wing):						
Quarters 7202			Not available	1963	27,512	2,100
AIR FORCE:						
Dover Air Force Base, Del.:						
Quarters 999			Not available	1968	34,989	2,050
Bergstrom Air Force Base, Tex.:						
Quarters 4412	-	48	48	1968	35,000	2,050
" 4414	-	79	79	1968	35,000	2,050
" 4416	-	Not available		1968	35,000	2,050
Reese Air Force Base, Tex.:						
Quarters 1111			Not available	1968	34,863	2,050
Andrews Air Force Base, Md.:						
Quarters 4776			Not available	1966	27,884	2,025
" 4778			do.	1966	27,884	2,025
" 4780			do.	1966	27,884	2,025
" 4782			do.	1966	27,884	2,025
" 4784			do.	1966	27,884	2,025
Nellis Air Force Base, Nev.:						
Quarters 650	-	765	765	1966	34,994	1,987
Ent Air Force Base, Colo.:						
Quarters 7481			Not available	1966	25,113	1,806
" 7483			do.	1966	25,113	1,806
" 7485			do.	1966	25,113	1,806
" 7487			do.	1966	25,113	1,806
MacDill Air Force Base, Fla.:						
Quarters 871	698	1,440	2,138	1965	25,854	2,100
" 872	804	561	1,365	1965	25,854	2,100
" 873	429	1,283	1,712	1965	25,854	2,100
" 879	1,302	630	1,932	1965	25,854	2,100
" "			Not available	1965	25,854	2,100
" "			do.	1965	25,854	2,100
" "			do.	1965	25,854	2,100
Ent Air Force Base, Colo.:						
Quarters 7108	1,138	986	2,124	1964	25,755	2,100
" 7109	711	516	1,227	1964	25,755	2,100
Arnold Engineering Development Center, Tenn.:						
Quarters 3051	901	515	1,416	1964	25,395	2,005
Norton Air Force Base, Calif.:						
Quarters A(FAC77)	655	1,246	1,901	1963	24,820	1,854
" B(FAC78)	568	979	1,547	1963	24,820	1,854
" C(FAC79)	342	1,298	1,640	1963	24,820	1,854
" D(FAC80)	1,414	-	1,414	1963	24,820	1,854
" E(FAC81)	558	1,860	2,418	1963	24,820	1,854
" G(FAC83)	1,543	941	2,484	1963	24,820	1,854
" H(FAC84)	621	1,732	2,353	1963	24,820	1,854
" I(FAC85)	1,653	1,279	2,932	1963	24,820	1,854
" (FAC82)			Not available	1963	24,820	1,854
" (FAC86)			do.	1963	24,820	1,854

HYPOTHETICAL ECONOMIC ANALYSIS INVOLVING
REPLACEMENT OF QUARTERS 1 AT PENSACOLA, FLORIDA
VERSUS RETAINING THE QUARTERS OVER A 25-YEAR PERIOD

		Discount factor (<u>10 percent</u>)	Dis- counted <u>cost</u>	Undis- counted <u>cost</u>
Construction cost of new quarters, including cost for demolition of old quarters	\$40,000	1.000	\$ 40,000	\$ 40,000
Average recurring annual oper- ation and maintenance cost for new quarters based on 25-year life (notes 1 and 3)	2,000	9.524	<u>19,000</u>	<u>50,000</u>
Total discounted cost for new quarters over 25-year life			<u>59,000</u>	
Total undiscounted cost for new quarters				<u>90,000</u>
Average recurring annual operation and maintenance cost of old quarters assuming 25 years addi- tional life (notes 2 and 3)	14,600	9.524	<u>139,000</u>	<u>365,000</u>

As shown above the discounted amounts in our analysis indicate that retention of the old quarters over a period of 25 years would cost about 135 percent more (\$139,000 - \$59,000) ÷ (\$59,000) than it would cost to demolish the old quarters and construct new quarters.

¹Conservatively estimated on the basis of a DOD memorandum showing acceptable cost ranges for operation and maintenance of family housing and upon the fact that the average cost of 20 units of housing constructed since fiscal year 1962 had average operation and maintenance cost of \$1,031 a unit in fiscal year 1968 and \$1,252 a unit in fiscal year 1969. (See p. 26.)

²Average based upon operation and maintenance costs identified with Quarters 1 in Pensacola for fiscal years 1964 through 1969. (See p. 25.)

³It is recognized that operation and maintenance costs are not constant from year to year, but it is assumed that variations would tend to level out and that the magnitude by which discounted retention costs exceed discounted replacement costs would not be materially affected. The discount factor used in our illustration assumes that these costs are incurred continuously throughout each year, that is, equal amounts daily.

Note: Inflation and other factors have been ignored for purposes of this illustration as presumably they would have a relatively equal impact on both the old and the new quarters.

AGENCY COMMENTS AND GAO EVALUATION

In commenting on the foregoing Hypothetical Economic Analysis, DOD offered the following items for consideration. The items are presented in the order provided by DOD. GAO comments pertinent to each DOD comment follow immediately thereafter.

1. DOD stated that estimated demolition costs of \$15,000 should be included in the \$40,000 construction cost estimate for new quarters since legally the unit cost for construction of new family housing may not exceed \$40,000, including site preparation costs.

The \$15,000 demolition cost was a conservative estimate based upon the DOD request to improve certain general-officer quarters in fiscal year 1970. This request estimated that demolition costs would be about \$15,000 a unit. We had included the estimated demolition costs as a separate item of investment cost on the assumption that DOD might consider securing separate funding for demolition costs involving replacement of certain "prestige" quarters. However, since the DOD must live within the constraints applied by the Congress and since the Congress may not accede to separate funding, perhaps a more realistic assumption would be to include demolition costs in the \$40,000 limitation. Therefore, we have revised our example to include the demolition costs in the total investment cost of \$40,000.

2. DOD said that the appropriate discount factor for the base year should be 0.954 instead of 1.000 because the DOD table of discount factors was based on the assumption that costs were incurred continuously each year.

Using a discount factor of 0.954, as suggested by DOD, would result in discounting for 6 months the initial construction costs of the new quarters. This assumes that the quarters are occupied at the beginning of the year, but not constructed until the middle of the year. We believe that such an assumption is unrealistic. In our opinion, a better approach is not to discount the initial costs of

construction. Therefore, we have used a discount factor of 1.000. In any event, the example is not significantly changed whether the discount factor used is 0.954 or 1.000.

3. DOD said that the most sensitive element in the economic analysis was the \$14,600 average recurring annual operation and maintenance cost for Quarters 1 at Pensacola. The Navy should be required to thoroughly validate and justify this figure. It appears unreasonable to expect annual operation and maintenance cost of \$14,600 for 25 years and a different estimate might be calculated on the basis of probability factors and confidence levels.

The average cost used in our illustration was based on the estimated and actual costs incurred for the operation and maintenance of Quarters 1 for a period of 6 fiscal years. Depending on a number of variables, the average cost could, over a 25-year period, either increase or decrease; however, we believe this average to be representative of the approximate costs which would be incurred if the building is retained over a 25-year period.

Our review of the actual operation and maintenance costs reported for this unit for fiscal years 1968 and 1969 showed the following elements of cost comprising the bulk of costs reported.

	<u>1968</u>	<u>1969</u>
Utilities cost	\$1,462	\$1,671
Grounds maintenance cost	\$6,703	\$2,796
Dwelling maintenance cost	\$18,266	\$8,871

The 1968 dwelling maintenance cost of \$18,266 included a project for roof and structural repairs of about \$6,662, and a project for repairs and painting of about \$4,708. The remaining costs were for routine maintenance. The \$8,871 dwelling maintenance cost in 1969 included major renovation costs due to a change of occupancy of the quarters and also included repair of tornado damage.

The 1969 grounds maintenance cost of \$2,796 was shown in the "other real property" category on the 1969

consolidated operation and maintenance cost report and may include minor amounts for such items as exterior utilities. The utilities costs increased in 1969, apparently due to the installation of air conditioning. The construction and design costs for air-conditioning these quarters amounted to about \$20,000 and are not included in the operation and maintenance costs reported in 1968 or 1969.

It appears to us, therefore, that these costs are the type of costs which, for the most part, could be anticipated to recur on a cyclical basis. For this reason, we have used the average cost of \$14,600 in our illustration.

4. DOD stated that questions should be raised about the true "economic life" of 25 years for the existing quarters at Pensacola. DOD questioned whether the operation and maintenance estimate included provision for refurbishment and extraordinary repairs which would extend the life of this unit to 25 years or longer. DOD stated that if it would be necessary to replace the existing unit before the end of 25 years, assuming no extraordinary repairs, the alternatives should be compared in terms of "uniform annual cost" instead of total present value cost.

Information available to us indicated that the operation and maintenance cost for the fiscal years 1964 through 1967 included no major repair or replacement of equipment for this quarters. The fiscal year 1968 cost included about \$6,662 for reroofing and structural repairs made in the first quarter of fiscal year 1968 and \$4,708 for major exterior repairs and maintenance painting made in the second quarter of fiscal year 1968. In fiscal year 1969, maintenance costs of \$8,871 were incurred for this dwelling, including major renovation costs for a change of occupancy and including costs for repair of tornado damage. We have assumed that the expenditures made would extend the dwelling life for 25 years.

5. DOD said that the objective of an analysis was to identify the least costly alternative and questioned whether all feasible alternatives

had been considered. DOD said that, if the alternatives of leasing comparable facilities or of providing higher quarters allowances were practical, they should be costed and included in the economic analysis.

We agree that all feasible alternatives should be considered. We did not consider in our analysis the leasing of comparable facilities or the providing of higher quarters allowances since these alternatives would involve substantially greater modifications in the present method of providing family housing than would an increased replacement program.

6. DOD said that, for purposes of determining the relative priority of replacements justified solely on the basis of saving, a ratio of saving to investment (present value) could be computed.

We agree. We have no objection to a priority ranking made on this basis.



ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

COMPTROLLER

13 OCT 1970

Mr. C. M. Bailey
Director, Defense Division
General Accounting Office

Dear Mr. Bailey:

We have reviewed your draft report on "Review of the Operation and Maintenance Aspects of the Family Housing Management Account" transmitted by your July 20, 1970 letter (OSD Case #3146). You offered four main recommendations or suggestions based on the findings of your review. Our comments on each of these follow:

GAO: To provide a more valid basis for comparison of operation and maintenance costs among the various Department of Defense Components, we recommend that the Secretary of Defense consider the provision of a more homogeneous categorization of family housing for accumulating and reporting operation and maintenance cost data. Such categorization should take into account size, age, type of construction and condition of units.

OSD: The Secretary of Defense's task force which developed the uniform cost criteria for Family Housing in February 1962, did consider the heterogeneous conglomeration of units in the Family Housing inventory in establishing the currently used categories. They were aware that age, size, type of building, construction material, geographic location and condition all affect operation and maintenance costs. The task force also recognized that a capability to compare a three-bedroom, one and one-half bath, 1,000 to 1,080 square foot, frame construction, row house, in the northeast, built in 1958 for enlisted personnel with any or all other units of the same characteristics would be quite useful. However, the task force knew that separate reporting of such a complex categorization to the echelons of review and command above the installation would be very voluminous and costly. The review effort would involve an enormous number of recordations, summarizations, and reports.

Rather than impose this enormous workload, the task force recommended adoption of summary categories that would be useful in the Office of the Secretary of Defense for policy guidance and in the DoD Component Headquarters for centralized program management and budget formulation and execution. Through the years these summary categories have worked very well. They provide data to OSD and DoD Component Headquarters that are meaningful and useful for management and budgeting. Comparisons and evaluations are

currently made and do detect areas where more detailed examination is warranted.

A working group, consisting of OSD and DoD Component personnel, is currently working to improve cost accounting for operation and maintenance of family housing by recommending measures to clarify current DoD Instructions in order to ensure more uniform implementation and interpretation. This DoD-wide group does not agree that the advantages of a more common relationship among types of housing would justify the increased cost and effort needed to provide data for a larger number of categories based on size, age, type of construction and condition of units. While the group has not yet completed its work, it currently expects to recommend only a few minor changes in categorization. These changes are intended to make unit cost averages more consistent, but the changes will not be to the extent advocated by the General Accounting Office.

In general, at installation level, the differences in houses are known specifically and considered in work plans and the allocation of resources for operation and maintenance. At the next higher level, where comparisons between installations are useful in approving work plans and in allocating resources for their accomplishment, reviewing officials are familiar with their installations and are able to evaluate the data provided by the summary categories. They would not fall into the traps pointed out by the General Accounting Office illustrations. At higher levels, the summary categories serve the intended purpose well since no installation by installation review and approval is required or necessary.

Accordingly, we believe we have, as you recommended, considered providing for more homogeneous categorization of housing. We conclude, however, that the larger number of categories required would not offer benefits commensurate with the additional cost required.

GAO: To provide for a greater degree of uniformity in the accumulation, recording and reporting of operation and maintenance cost data, we recommend that the Secretary of Defense issue more comprehensive and definitive directions designed to avoid the more salient variations currently existing among installations in the Department of Defense (costs of operating and maintaining family housing should be accumulated and recorded at each location utilizing the same principles, procedures, and internal controls).

OSD: We agree that our Instructions can be more definitive and, as mentioned above, a working group is currently in the process of developing recommendations to clarify current DoD Instructions in order to ensure more uniform implementation and interpretation. The need for the group's effort arose from a recognition that discrepancies and inaccuracies occurred. Admittedly, the usefulness of cost data is affected by these discrepancies and more meaningful comparisons would be possible from more uniform interpretation and application of the cost accounting system. However, the comparisons that are made are useful and they serve to uncover discrepancies.

APPENDIX V

Differences in organizations developed to manage family housing hamper achievement of uniform accounting. One step taken to alleviate this has been to develop and publish DoDI 7165.53, "Centralized Family Housing Offices at Installations." The current working group recommended amplifications of this Instruction which were adopted in a published revision.

It must also be recognized that, for efficiency in operations, family housing costs in many cases are initially financed from appropriations available for service or agency operation and maintenance other than family housing or from industrial funds, with such costs subsequently being reimbursed with family housing funds. There are inherent differences in the accounting systems for the activities operating under the different funding arrangements. An activity operating under the industrial fund has a commercial-type accounting system which provides for the application of all overhead to work performed. Many of the activities operating under appropriations do not have such a system. Since, at present, it is impractical to install the same type of accounting system at all DoD activities, the inherent differences in these systems must be recognized and a certain amount of non-uniformity accepted to obtain the optimum systems. In an effort to provide uniformity, the instructions on family housing provide that administrative overhead will be charged on an incremental basis, i.e., family housing will be charged only for administrative overhead which would not have been incurred if family housing were not serviced by the activity. One of the main tasks of the working group is to clarify language in this area.

Upon complete implementation of DoDI 7220.27, "Accounting for Accrued Expenditures and Revenues," by all appropriations and funds of the Department of Defense, more uniform treatment of family housing costs will be practicable. In the meantime, clarification of the language used in DoD Instructions recognizing differences in funding and accounting for the organizations supporting family housing will be pursued.

GAO: We also recommend that the internal audit efforts of the military services emphasize coverage of this area in their regularly scheduled audits of family housing activities.

OSD: The myriad operations of the Department of Defense are provided internal audit coverage consistent with the significance of the operation and overall audit priorities. Pursuant to this policy, family housing operations and the related accounting functions are audited in the performance of comprehensive installation audits. This audit coverage will be continued in the future and will continue to emphasize adherence to the requirements of DoD issuances.

GAO: We recommend that the Secretary of Defense provide the Congress, in annual construction authorization requests, with a phased plan for the orderly replacement of family housing units no longer economical to operate and maintain. This would enable the Congress to consider the merits of

authorizing current expenditures to achieve future savings in operation and maintenance costs.

OSD: We agree that there should be a phased plan for the orderly replacement of family housing units no longer economical to operate and maintain. However, DoD is faced with a continuing and substantial deficit in housing requirements. Many of our military families are unable to live together in adequate houses. Further, we need to keep our representational quarters even though some may be uneconomical to maintain.

We have recognized these problems and have established a system to specifically identify the costs of those units with high operation and maintenance costs. This aids us in reducing these costs and in making economic analyses to support eventual replacement. As soon as our more urgent priorities are met, a specific request will be presented to Congress for authorization and funds to construct housing to replace uneconomic housing.

Other Comment

The statement in Chapter 1, Introduction, on page 5, that DoD received an appropriation of about \$397 million for O&M of Family Housing in FY 1970 may be misleading. This amount apparently includes the leasing program. Funds appropriated for O&M of the inventory of approximately 364,000 dwelling units amounted to about \$373 million.

We appreciate the thoroughness and objectivity of the review evidenced by your draft report and the Military Departments will take action to correct the causes of the specific errors you cited. With regard to your economic analysis, some technical comments are enclosed that you may wish to consider.

Sincerely,



Robert C. Moot
Assistant Secretary of Defense

Enclosure

APPENDIX V

The following comments apply to the GAO "Hypothetical Economic Analysis" in Appendix IV.

1. Section 502.b. of the Military Authorization Act of 1970 provides that the single unit cost for construction of new family housing may not exceed \$40,000 including site preparation costs. Therefore, total project costs are overstated by \$15,000 since the demolition costs of \$15,000 should be included in the \$40,000 construction cost estimate for new quarters.

2. The appropriate discount factor for the base year should be .954 in accordance with DoDI 7041.3 instead of 1.000. The table of discount factors is based on the assumption that costs are incurred continuously each year.

3. The most sensitive element in the economic analysis is the \$14,600 average recurring annual O&M cost for Quarters 1 at Pensacola, Florida. This amount needs to be thoroughly validated and justified. On the surface it would appear unreasonable to expect annual O&M costs of \$14,600 for 25 years. A different estimate might be calculated based on probability factors and confidence levels.

4. Questions should be raised about the true "economic life" of 25 years for the existing dwelling unit. Does the O&M estimate include provision for refurbishment and extraordinary repairs which would extend the economic life of this unit to 25 years or longer? If it would be necessary to replace the existing unit before the end of 25 years assuming no extraordinary repairs, the alternatives should be compared in terms of "uniform annual cost" instead of total present value cost.

5. It should be noted that the example assumes "equal benefits" (output). That is, the same level of military effectiveness will result regardless of which alternative is selected. The objective in this case is, of course, to identify the least costly alternative, or the alternative that minimizes cost for a given level of benefits. But, have all feasible alternatives been considered? If the alternatives of leasing comparable facilities or providing higher quarters allowances are practical, they should be costed and included in the economic analysis.

6. For purposes of determining the relative priority of replacements justified solely on the basis of savings, a savings/investment ratio (present value) could be computed.

Enclosure

PRINCIPAL OFFICIALS OF
THE DEPARTMENT OF DEFENSE
AND THE MILITARY DEPARTMENTS
RESPONSIBLE FOR ADMINISTRATION OF ACTIVITIES
DISCUSSED IN THIS REPORT

	Tenure of office	
	From	To
<u>DEPARTMENT OF DEFENSE</u>		
SECRETARY OF DEFENSE:		
Melvin R. Laird	Jan. 1969	Present
Clark M. Clifford	Mar. 1968	Jan. 1969
Robert S. McNamara	Jan. 1961	Feb. 1968
DEPUTY SECRETARY OF DEFENSE:		
David M. Packard	Jan. 1969	Present
Paul H. Nitze	July 1967	Jan. 1969
Cyrus R. Vance	Jan. 1964	June 1967
Roswell L. Gilpatric	Jan. 1961	Jan. 1964
ASSISTANT SECRETARY OF DEFENSE (COMPTROLLER):		
Robert C. Moot	Aug. 1968	Present
Robert N. Anthony	Sept. 1965	July 1968
Charles J. Hitch	Feb. 1961	Aug. 1965
ASSISTANT SECRETARY OF DEFENSE (INSTALLATIONS AND LOGISTICS):		
Barry J. Shillito	Jan. 1969	Present
Thomas D. Morris	Sept. 1967	Jan. 1969
Paul R. Ignatius	Dec. 1964	Aug. 1967
Thomas D. Morris	Jan. 1961	Dec. 1964
DEPUTY ASSISTANT SECRETARY OF DE- FENSE (FAMILY HOUSING):		
John J. Reed	Feb. 1962	Mar. 1969

APPENDIX VI

Tenure of officeFrom ToDEPARTMENT OF DEFENSE (continued)DEPUTY ASSISTANT SECRETARY OF DE-
FENSE (INSTALLATIONS AND HOUS-
ING):

Edward J. Sheridan May 1969 Present

DEPARTMENT OF THE ARMY

SECRETARY OF THE ARMY:

Stanley R. Resor	July	1965	Present
Stephen Ailes	Jan.	1964	July 1965
Cyrus R. Vance	July	1962	Jan. 1964
Elvis J. Stahr, Jr.	Jan.	1961	June 1962

ASSISTANT SECRETARY OF THE ARMY
(INSTALLATIONS AND LOGISTICS):

J. Ronald Fox	June	1969	Present
Vincent P. Huggard (acting)	Mar.	1969	June 1969
Robert A. Brooks	Oct.	1965	Feb. 1969
Daniel M. Luevano	July	1964	Oct. 1965
A. Tyler Port (acting)	Mar.	1964	June 1964
Paul R. Ignatius	May	1961	Feb. 1964

DEPARTMENT OF THE NAVY

SECRETARY OF THE NAVY:

John H. Chaffee	Jan.	1969	Present
Paul R. Ignatius	Aug.	1967	Jan. 1969
Paul H. Nitze	Nov.	1963	July 1967
Fred Korth	Jan.	1962	Nov. 1963
John B. Connally	Jan.	1961	Dec. 1961

ASSISTANT SECRETARY OF THE NAVY
(INSTALLATIONS AND LOGISTICS):

Frank P. Sanders	Feb.	1969	Present
Barry J. Shillito	Apr.	1968	Jan. 1969
Vacant	Feb.	1968	Apr. 1968
Graeme C. Bannerman	Feb.	1965	Feb. 1968
Kenneth L. BeLieu	Feb.	1961	Feb. 1965

<u>Tenure of office</u>		
	<u>From</u>	<u>To</u>

DEPARTMENT OF THE AIR FORCE

SECRETARY OF THE AIR FORCE:

Robert C. Seamans, Jr.	Jan. 1969	Present
Harold Brown	Oct. 1965	Jan. 1969
Eugene M. Zuckert	Jan. 1961	Sept. 1965

ASSISTANT SECRETARY OF THE AIR
FORCE (INSTALLATIONS AND LOGIS-
TICS):

Phillip N. Whittaker	Apr. 1969	Present
Robert H. Charles	Nov. 1963	Apr. 1969
Vacant	Oct. 1963	Nov. 1963
Joseph S. Imirie	Apr. 1961	Sept. 1963